REMARKS

The Office Action dated September 3, 2008, rejects claims 1-11 and 17 under 35 U.S.C. 103(a) as being unpatentable over Martin (U.S. Patent No. 5,368,594, "Martin") in view of Vignaud (U.S. Patent No. 5,176,680, "Vignaud") in further view of Schlapfer (U.S. Patent No. 5,501,684, "Schlapfer") and in further view of Petreto (U.S. Patent 5,938,663, "Petreto"). Further, the Office Action rejects claims 12-16 and 18-24 under 35 U.S.C. § 103(a) as being unpatentable over Martin et al. (U.S. Patent No. 5,368,594, "Martin") in view of Vignaud et al. (U.S. Patent No. 5,176,680, "Vignaud") and further in view of Schlapfer et al. (U.S. Patent No. 5,501,684, "Schlapfer"). In addition, the Examiner rejects claim 23 under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. Claims 25-35, which were submitted in the Response to the Office Action dated November 21, 2007, are withdrawn from consideration as directed to a non-elected invention.

By this response, Applicant proposes to amend independent claims 1 and 12 to include portions of the subject matter of dependent claims 6 and 17 respectively, amend claims 6 and 17 accordingly, and add new dependent claims 36-40 to further describe this subject matter. Support for these amendments may be found, for example, in paragraphs 21, 25, and Fig. 3. No new matter has been added. Further, Applicant proposes to cancel claims 23 and 25-35, without prejudice or disclaimer, solely to expedite the prosecution of this application. Applicant reserves the right to present the subject matter of these claims in a related application.

For all of the following reasons, Applicant respectfully requests reconsideration and early allowance of the claims per the currently proposed amendment.

Claim Rejections under 35 U.S.C. § 112, ¶1

Claim 23 is rejected as failing to comply with the written description requirement of 35 U.S.C. § 112, ¶1. The Examiner alleges that the aperture of the cap, as disclosed in the specification, refers to element 17 as conical, not spherical.

Without acquiescing to the Examiner's rejection, and solely to expedite the prosecution of this application, Applicant cancels claim 23, thereby mooting the rejection under 35 U.S.C. § 112, ¶1.

Claim Rejections under 35 U.S.C. § 103(a)

Rejection of claims 1-11

The Examiner rejects claims 1-11 under 35 U.S.C. 103(a) as being unpatentable over Martin in view of Vignaud in further view of Schlapfer and in further view of Petreto.

The Examiner asserts that the combination of Martin, Vignaud, and Schlaper disclose and teach all of the limitations of claims 1-11, except for the cavity of the head allowing for angular adjustments of the pin in multiple planes prior to immobilization, for which the Office Action cites Petreto. The Office Action alleges that Petreto teaches a device which allows orientation of the pin in multiple planes by allowing clearance in all directions about the rod, and states that "it would have been obvious to one having ordinary skill in the art to combine to design the combination of Martin et al., Vignaud et al. and Schlapfer et al. with the ability to allow other planes of angulation as a matter of mere substitution for the single planar angulation taught by Vignaud et al. with predictable results." Office Action at p.5.

Applicant respectfully traverses this rejection. Without acquiescing to the propriety of the Examiner's rejection, Applicant amends independent claim 1 to incorporate the structure that permits the claimed angular adjustment, previously stated in detail in dependent claim 6. Applicant respectfully submits that Martin, Vignaud, Schlapfer and Petreto, either alone or in combination, do not teach each and every element of claim 1 as currently amended.

Claim 1, as amended, requires in part that "the cavity of each screw head includes an inner surface having a partially spherical contour bordered on either side by a lateral recess, wherein the lateral recesses allow angular adjustments in multiple planes of the at least one pin with respect to the at least one screw prior to immobilization of the pin." None of the cited references disclose or suggest any lateral recesses in the cavity delimited by the head of the screw, nor do they provide any motivation to include such lateral recesses in the head to allow angular clearance in multiple directions.

Applicant asserts that the lateral recesses in spherical surface of the cavity of the head provide angular clearance to the pin in multiple planes. As described in the Response to the Office Action dated November 21, 2007, the lateral recesses work in conjunction with the spherical contour of the cavity and the spherical ring to enable angular adjustment of the pin in both the median (vertical) plane and the transverse (horizontal) plane, and thus provide better alignment of the vertebral arthrodesis device.

In contrast, Vignaud discloses angular clearance of the rod in only the median plane, which is referred to as the sagittal plane, through the recess 15 at the bottom of the housing 5, and the truncated section 16 of the locking screw 7. See Vignaud at col. 1, l. 35-40, and col. 2, l. 54-59. Vignaud does not disclose or suggest lateral recesses in the head cavity. Therefore, mobility of the rod along the transverse plane would be clearly restricted by the branches 4a, 4b of the diapason-shaped head. Martin, on the other hand, does not disclose or suggest angular adjustments of the pin at all, nor does Martin disclose or suggest lateral recesses. Further, Schlapfer, which the Examiner appears to have cited only based on the structural features of the ring, does not disclose the lateral recesses, or angular adjustments of a rod in multiple planes, and therefore, does not cure the defect in the rejection based on Martin and Vignaud.

The Examiner alleges that Petreto teaches a device which allows orientation of the pin in multiple planes by allowing clearance in all directions. Applicant respectfully disagrees with the Examiner, and asserts that while Petreto does disclose adjustments in multiple planes, Petreto does not disclose or suggest "an inner surface having a partially spherical contour bordered on either side by a lateral recess, wherein the lateral recesses allow angular adjustments in multiple planes of the at least one pin with respect to the at least one screw prior to immobilization of the pin." Petreto simply teaches a compressible ring in a cylindrical cavity, which forms a ball joint, and allows minimal motion to the rod in all directions. See Fig. 2 of Petreto.

Therefore, Martin, Vignaud, Schlapfer and Petreto, alone or in combination, do not teach each and every element of claim 1. It is respectfully requested that the

rejection of claim 1 be withdrawn for the above-stated reasons. Claims 2-11 and 36 depend from claim 1, and thus are patentable over Martin, Vignaud, Schlapfer and Petreto for at least the same reasons as claim 1.

Rejection of claims 12-24

The Office Action rejects claims 12-16 and 18-24 under 35 U.S.C. 103(a) as being unpatentable over Martin in view of Vignaud and in further view of Schlapfer. The Examiner refutes the Applicant's arguments filed May 20, 2008, and maintains that the cited references render the claims obvious to one of ordinary skill in the art. Further, the Examiner rejects claim 17 under 35 U.S.C. 103(a) as being unpatentable over Martin in view of Vignaud in further view of Schlapfer and in further view of Petreto.

Applicant respectfully traverses this rejection. Without conceding the Examiner's arguments, Applicant proposes to amend independent claim 12 to recite "a head that includes a cavity for receiving the at least one ring in sliding engagement with the pin with snap-on installation, wherein the cavity includes an inner surface having a partially spherical contour configured to cooperate with the outer surface of the at least one ring to permit angular adjustment of the at least one pin; and at least one cap having an aperture configured to contact and secure the at least one ring within the cavity, the at least one cap being configured to provide angular clearance to the at least one pin in multiple planes." Applicant respectfully submits that Martin, Vignaud, Schlapfer and Petreto, either alone or in any combination, do not teach each and every limitation of claim 12 as currently amended.

Claim 12, as amended, requires in part that "the at least one cap being configured to provide angular clearance to the at least one pin in multiple planes". None of the cited references disclose or suggest that the cap (or any other structure provided to contact and secure the ring within the cavity) is configured to allow angular adjustment of the pin in multiple directions, nor do they provide any motivation for such configuration.

The Examiner alleges that Petreto teaches a device which allows orientation of the pin in multiple planes by allowing clearance in all directions. Applicant respectfully disagrees with the Examiner, and reasserts that while Petreto does disclose adjustments in multiple planes, Petreto does not disclose or suggest "the at least one cap being configured to provide angular clearance to the at least one pin in multiple planes". First and foremost, Petreto does not disclose a cap, or any other equivalent structure, for securing the connecting rod 27 to the bone anchor member 1. Petreto simply discloses a clamp 9, which houses a compressible ring 24, through which the rod 27 is connected. Nowhere does Petreto disclose or suggest that the clamp 9 or the ring 24 is configured to allow angular clearance in multiple planes. On the contrary, the interior cavity 22 of clamp 9 and the ring 24 are configured to limit the angular movement of the ring. Specifically, the ring 24 includes external cylindrical portions 29, as shown in FIG. 7 of Petreto, which bear on the inner cylindrical walls 22 of clamp 9 to limit the angle of rotation of the rod 27.

> The external face of the ring has a central spherical enlargement 28 the top of which is inserted in the unclamped position of the clamp 9 into the interior cavity 20 delimited by

> the central portion 21, the spherical enlargement 28 being extended on each side by two externally cylindrical portions 29 forming annular abutments so that, in the unlocked position, the angle of the axis of the ring 24 is limited by the annular abutments bearing on the walls of cylindrical lateral portion 22 of the interior cavity 20.

Petreto, col. 4, l. 5-14, (emphasis added).

As further described below, the ring 24 and the clamp 9 are configured to limit the angle of rotation of the rod 27 to about 15°.

> [T]he limitation of angular movement of the ring 24 by the annular abutments formed by each externally cylindrical portion 29 guarantees that the interior passage 26 in the ring 24 is correctly aligned with the entry of the cavity 20 of the clamp 9. The possible angle of rotation of the rod 27 about the axis of the interior cavity 20 defined in this way is preferably about 15° as shown in FIG. 2.

Petreto, col. 4, l. 22-29, (emphasis added).

Therefore, Petreto does not disclose or suggest any structure that is "configured to provide angular clearance to the at least one pin in multiple planes," as recited in claim 12. Contrary to the Examiner's arguments, Petreto in fact teaches away from any configuration that provides angular clearance to the pin.

The other cited references, *e.g.*,, Martin, Vignaud and Schlapfer, do not overcome this deficiency of Petreto. Martin and Schlapfer do not disclose or suggest any structure to allow angular clearance to the pin, whereas the cap 8 of Vignaud is configured to provide clearance to the pin in only the vertical plane, as discussed earlier. Therefore, Martin, Vignaud, Schlapfer and Petreto, alone or in combination, do not teach each and every element of claim 12. It is respectfully requested that the rejection of claim 12 be withdrawn for the above-stated reasons. Claims 13-24 depend

from claim 12, and thus are patentable over Martin, Vignaud, Schlapfer and Petreto for at least the same reasons as claim 12.

Additionally, claim 17 recites the limitation of "two lateral spherical recesses configured to provide angular clearance of the at least one pin in multiple planes," as similar to claim 1, and therefore, should be allowed for at least the same reasons as claim 1.

New dependent claims 36-40 have been added which recite additional features not shown by the prior art. To the extent the rejection of claims 1-24 is applicable to these claims, Applicant provides the following comments.

Claims 36-40 disclose that the head of the screw includes a cap with lateral spherical recesses that allows angular adjustments of the pin in multiple planes, and also that the cavity of the screw is bordered by two lateral spherical recesses that provide angular clearance to pin in multiple planes. None of the cited references disclose or suggest these additional features. Applicant, therefore, requests consideration and timely allowance of these new claims.

It is respectfully submitted that the remarks presented here clarify the claims for the purposes of appeal, entry of which is earnestly solicited.

CONCLUSION

In view of the foregoing remarks, Applicant respectfully requests reconsideration and reexamination of this application and the timely allowance of the claims as amended.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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